ASME International

Coast Guard Academy

Team u.S.A.

TEAM # 500

Distributed Design &

Distributed Decision Making

FIRST

The e-TEAM

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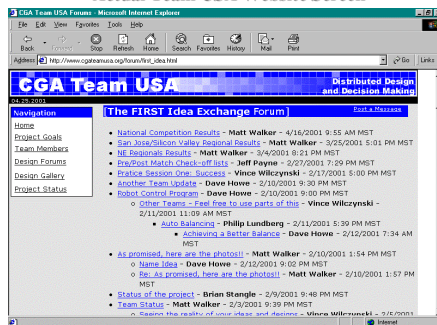
Distributed Design & Decision Making

Unlike a traditional FIRST team, which would be made up of high school students and teachers all from the same high school, engineers and technicians from a local industry, and a local sponsor, Team USA came together from all over the country. The five cadets were the technicians, engineers, adult team members, coaches, and leaders of the project. Our high school students came from high schools in 8 different states, including CT, MA, MI, IN, WA, and CA. This added to the complexity of the project, as all decisions, designs, and construction had to be coordinated not only between cadets and high school students, but across state lines and multiple time zones.

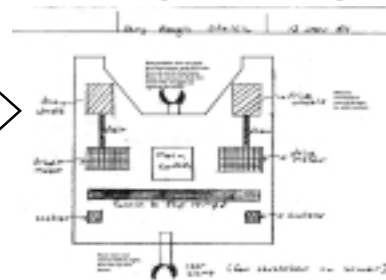### Actual Team USA Website Screen

Communication across the country

To facilitate communications with our high school team member around the country, Team USA utilized its very own website and private file server. This allowed team members to post notes, ideas, drawings, sketches, programs, pictures, Word documents and other important information in such a manner that the rest of the team was sure to read it. Microsoft Network (MSN) Messenger, in conjunction with NetMeeting, allowed for real-time communication between team members. Members even used microphones and headsets to talk to each other over the Internet, discussing design ideas and strategy for this year's competition. At left is an actual design forum discussion page from the team website.

Sharing Designs and Ideas

The team's strategy, initial design and concept, and sub-component designs stages were completed via the Internet. All team decisions were made using decision matrices, which were posted as an empty matrix to the team website. Each member, or "node", then downloaded the matrix, filled it in, and either posted it to the website or emailed to the cadet team leader. The cadets then compiled all the replies and announced the decision. On the right is one of several early sketches of the final design as it was posted to the team website.

A Design Sketch On Web Page

Detailed Design - Full-scale Model

The Design Process in Distributed Design

The team's strategy was decided upon from various notes left on the website and several discussions held over MSN Messenger. After that, each team member or node was asked to submit design ideas to the website. Ideas were submitted in text form as well as in hand-drawn sketches and digital photographs of drawings or models. Once the general design was decided upon by a decision matrix, each cadet took charge of a sub-team, made up of 1-4 high school students, and used the same process to design and model each sub-component.